CLAIMS:

1. A method of segmenting a first image feature (214) in a first video image from an adjacent second image feature (216) in the first video image, the first image feature (214) having plural pixels with respective values of an image property substantially being in a first range of values and having motion relative to the second image feature (216) between the first video image and a second video image, and the second image feature (216) having plural pixels with respective values of the image property substantially being in a second range of values being different from the first range of values, the method comprising;

- dividing the first video image into blocks of pixels;
- estimating motion vectors (218-230) for the respective blocks of pixels;
- segmenting the first video image into a first group of connected blocks of pixels (204C) and a second group of connected blocks of pixels (206C) by classifying the blocks of pixels on basis of the motion vectors (218-230) of the respective blocks of pixels; and succeeded by segmenting the first image feature (214C) from the second image feature (216C) by means of a pixel-based segmentation of a portion of the blocks of pixels of the first and second group of connected blocks of pixels (204C, 206C), which have been determined to be positioned at a border between the first and second group of connected blocks of pixels (204C, 206C), on basis of the respective values of the image property.

2. A method as claimed in claim 1, whereby segmenting the first video image into the first group of connected blocks of pixels (204C) and the second group of connected blocks of pixels (206C) is based on a motion model.

3. A method as claimed in claim 2, whereby segmenting the first video image into the first group of connected blocks of pixels (204C) and the second group of connected blocks of pixels (206C) is based on an affine motion model.

4. A method as claimed in claim 2 or 3, whereby segmenting the first video image into the first group of connected blocks of pixels (204C) and the second group of connected blocks of pixels (206C) comprises:

- creating a first initial group of connected blocks of pixels (204A) for the first group of connected blocks of pixels (204C), the first initial group of connected blocks of pixels (204A) comprising a particular block of pixels (232);

- determining a first motion model for the first initial group of connected block of pixels (204A);

- calculating a first match error between the motion vector corresponding to the particular block of pixels (232) being estimated during estimating motion vectors (218-230) for the respective blocks of pixels of the first video image and the motion vector corresponding to the particular block of pixels (232) on basis of the first motion model;

- calculating a second motion model for a test group of connected blocks of pixels (204B), based on the first initial group of connected blocks of pixels (204A), but excluding the particular block of pixels (232);

- calculating a second match error between the motion vector corresponding to the particular block of pixels (232) being estimated during estimating motion vectors (218-230) for the respective blocks of pixels of the first video image and the motion vector corresponding to the particular block of pixels (232) on basis of the second motion model;

- deciding whether the particular block of pixels (232) corresponds to the first group of connected blocks of pixels (204C) or not on basis of the first and second match error.

5. A method as claimed in claim 1, whereby the pixel-based segmentation is based on a spatial color model.

6. A method as claimed in claim 1, whereby the pixel-based segmentation is based on a spatial luminance model.

7. A method as claimed in claim 5 or 6, whereby a step in values of the image property is detected in a first block (302) of the portion of the blocks of pixels of the first group of connected blocks of pixels (204C), which have been determined to be positioned at the border between the first and second group of connected blocks of pixels (204C, 206C).

8. A method as claimed in claim 7, whereby the step is detected by means of:

- calculating for the pixels of the first block (302) a first mean value of the image property;

- calculating a first difference measure on basis of the first mean value and the respective values of the pixels of the first block (302);

- calculating for the pixels of a second block of pixels (304) a second mean value of the image property, the second block (304) of pixels corresponding to the second group of pixels and being connected to the first block (302);

- calculating a second difference measure on basis of the second mean value and the respective values of the pixels of the second block (304);

- creating a first test group of pixels on basis of the first block (302) but excluding a particular pixel and creating a second test group of pixels on basis of the second block (304) and comprising the particular pixel;

- calculating for the pixels of the first test group a third mean value of the image property;

- calculating a third difference measure on basis of the third mean value and the respective values of the pixels of the first test group;

- calculating for the pixels of the second test group a fourth mean value of the image property;

- calculating a fourth difference measure on basis of the fourth mean value and the respective values of the pixels of the second test group;

- deciding whether the particular pixel belongs to the first image feature (214) or the second image feature (216) on basis of the first, second, third and fourth difference measure.

9. A segmentation system (100) for segmenting a first image feature (214) in a first video image from an adjacent second image feature (216) in the first video image, the first image feature (214) having plural pixels with respective values of an image property substantially being in a first range of values and having motion relative to the second image feature (216) between the first video image and a second video image, and the second image feature (216) having plural pixels with respective values of the image property substantially being in a second range of values being different from the first range of values, the segmentation system (100) comprising;

- dividing means (103) for dividing the first video image into blocks of pixels;

- a block-based motion estimator (102) for estimating motion vectors (218-230) for the respective blocks of pixels;

- a motion segmentation unit (104) for segmenting the first video image into a first group of connected blocks of pixels (204C) and a second group of connected blocks of pixels (206) by classifying the blocks of pixels on basis of the motion vectors (218-230) of the respective blocks of pixels; and

- a pixel-based segmentation unit (106) for segmenting the first image feature (214) from the second image feature (216) by means of a pixel-based segmentation of a portion of the blocks of pixels of the first and second group of connected blocks of pixels (204C, 206C), which have been determined to be positioned at a border between the first and second group of connected blocks of pixels (204C, 206C), on basis of the respective values of the image property.

10. A motion estimator at pixel resolution (400, 401) for estimating a motion vector field, comprising the segmentation system (100) as claimed in claim 9.

11. A motion estimator at pixel resolution (400) as claimed in claim 10 being arranged to assign the motion vectors (218-230) estimated for the respective blocks to the respective pixels of the first video image on basis of the segmenting the first image feature (214) from the second image feature (216).

12. A motion estimator at pixel resolution (401)as claimed in claim 10 being arranged to estimate a new motion vector for the first image feature (214) by means of comparing pixels of the first image feature (214) with corresponding pixels of the second video image.

13. An image processing apparatus (500) comprising:

- receiving means (502) for receiving a signal representing a series of video images;

- a motion estimator at pixel resolution (504) as claimed in claim 10 for estimating a motion vector field from the video images; and

- a motion compensated image processing unit (506) for determining processed images on basis of the video images and the motion vector field.

14. An image processing apparatus (500) as claimed in claim 13, whereby the motion compensated image processing unit (506) is designed to perform video compression.

15. An image processing apparatus (500) as claimed in claim 13, whereby the motion compensated image processing unit (506) is designed to reduce noise in the series of images.

16. An image processing apparatus (500) as claimed in claim 13, whereby the motion compensated image processing unit (506) is designed to de-interlace the series of images.

17. An image processing apparatus (500) as claimed in claim 13, characterized in that the motion compensated image processing unit (506) is designed to perform an up-conversion.